UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,399	04/23/2001	Jacobus Haartsen	040071-510	4491

7590	03/30/2004	EXAMINER

Ronald L. Grudziecki
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER	TRINH, TAN H

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)
Office Action Summary	09/840,399		HAARTSEN, JACOBUS
	Examiner		**Art Unit**
	TAN TRINH		2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *3, 5, 6*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement filed 06-19-2001, 02-01-2002 and 12-03-2002
has been received and placed of record in the file.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-10, 13-15, 16-25 and 28-31 are rejected under 35 U.S.C. 102(e) as being

anticipated by Shahar (U.S. Pub. No.20030002495).

Regarding claims 1 and 16, Shahar teaches a method for synchronization in radio

communication systems (see fig. 2), the method comprising the steps of: encapsulating symbols

in an information stream (see page 6, session [0050-0051]); modulating the information stream

(see page 6, session [0048]); sending the modulated information stream with a first robustness

level over a communication channel (see page, sessions [0048-0049]); and reducing the level of

robustness of the information stream to a second robustness level according to a predetermined

function (see page 2, session [0028-0030] and reduce the level of robustness by increase the

symbol data rate see Tables 7A-B).

Regarding claims 2 and 17, Shahar teaches the step of: dividing the information stream

into a plurality of segments (see page 6, sessions [0055-0056]).

Regarding claims 3 and 18, Shahar teaches the steps of: adding Forward Error Correction

(FEC) coding to a plurality of segments in the information stream using at least two different

coding rates (see page 7, sessions [0063-0064]); and varying the coding rates among the plurality

of segments to change the robustness of the information stream from the first robustness level to

the second robustness level (see page 8, sessions [0065-0071]).

Regarding claims 4 and 19, Shahar teaches wherein the plurality of segments to which

the FEC coding is added includes a segment adjacent to where a demodulation of the information

stream begins (see page 7, sessions [0061-0062]).

Regarding claims 5 and 20, Shahar teaches wherein the step of modulating the

information stream comprises the steps of: modulating a plurality of segments in the information

stream using at least two different modulation schemes (see page 7, session [0064]); and varying

the modulation schemes among the plurality of segments to change the robustness of the

information stream from the first robustness level to the second robustness level (see page 2,

session [0028, page 6, session [0049] and page 8, session [0070]).

Regarding claims 6 and 21, Shahar teaches wherein the plurality of segments modulated

using at least two different modulation schemes includes a segment adjacent to where a

demodulation of the information stream begins (see page 7, sessions [0061-0062] and session

[0064]).

Regarding claims 7 and 22, Shahar teaches wherein the step of encapsulating symbols

comprises the step of: adding Forward Error Correction (FEC) coding to at least one segment in

the information stream (see page 7, sessions [0061-0063]); wherein the varying of the

modulation schemes and the adding of FEC coding change the robustness of the information

stream from the first robustness level to the second robustness level (see page 8, sessions [0065-

0071]).

Regarding claims 8 and 23, Shahar teaches wherein the step of encapsulating symbols

comprises the steps of: adding Forward Error Correction (FEC) coding to a plurality of segments

in the information stream using at least two different coding rates (see page 7, sessions [0061-

0064]); and varying the coding rates among the plurality of segments; wherein the varying of the

modulation schemes and the varying of the coding rates change the robustness of the information

stream from the first robustness level to the second robustness level (see page 2, session [0028,

page 6, session [0049] and page 8, session [0070] and page 6, Table 7A-B).

Regarding claims 9 and 24, Shahar teaches wherein the pluralities of segments among

which the modulation schemes vary and the plurality of segments among which the coding rates

vary are different pluralities of segments (see page 5, sessions [0045-0046] and Table 7A-B).

Regarding claims 10 and 25, Shahar teaches wherein the plurality of segments among which the modulation schemes vary and the plurality of segments among which the coding rates vary are the same plurality of segments (see page 5, sessions [0045-0046] and Table 7A).

Regarding claim 13, Shahar teaches the steps of: receiving the modulated information stream from the communication channel (see page 1, session [0012]; and demodulating the information stream after a first number of symbols have been received (see page 1, session [0012, lines 5-11] and session [0055]), wherein the first number of symbols is less than a second number of symbols (see session [0012 line 10]) that would have to be received to demodulate a corresponding information stream sent over the communication channel only at the second robustness level (see page 1, session [0012, lines 7-11] and sessions [0055-0056]).

Regarding claims 14 and 28, Kodama teaches wherein the information stream is comprised of packets (see page 1, session [0011]).

Regarding claims 15 and 29, Kodama teaches wherein the packets comprise a training sequence (see page 6, session [0054]).

Regarding claim 30, Shahar teaches an apparatus for synchronization in radio communication systems (see fig. 2), comprising: a receiver for receiving a modulated information stream with a first robustness level sent over a communication channel and then reduced the to a second robustness level according to a predetermined function (see page 1,

session [0012] and page 2, session [0028-0030] and reduce the level of robustness by increase

the symbol data rate see Tables 7A-B); and a demodulator for demodulating the information

stream after a first number of symbols have been received (see page 1, session [0012, lines 5-11]

and session [0055]), wherein the first number of symbols is less than a second number of

symbols (see session [0012 line 10]) that would have to be received to demodulate a

corresponding information stream sent over the communication channel only at the second

robustness level (see page 1, session [0012, lines 7-11] and sessions [0055-0056]).

Regarding claim 31, Shahar teaches a system for synchronization in radio communication

systems (see fig. 2), comprising: logic that encapsulates symbols in an information stream (see

page 6, session [0050-0051]); a modulator for modulating the information stream (see page 6,

session [0048]); a transmitter for sending the modulated information stream with a first

robustness level over a communication channel (see page, sessions [0048-0049]); logic that

reduces the level of robustness of the information stream to a second robustness level according

to a predetermined function (see page 2, session [0028-0030] and reduce the level of robustness

by increase the symbol data rate see Tables 7A-B); a receiver for receiving the modulated

information stream from the communication channel (see page 1, session [0012] and page 2,

session [0028-0030] and reduce the level of robustness by increase the symbol data rate see

Tables 7A-B); and a demodulator for demodulating the information stream after a first number of

symbols have been received (see page 1, session [0012, lines 5-11] and session [0055]), wherein

the first number of symbols is less than a second number of symbols (see session [0012 line 10])

that would have to be received to demodulate a corresponding information stream sent over the

communication channel only at the second robustness level (see page 1, session [0012, lines 7-

11] and sessions [0055-0056]).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 11-12 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shahar (U.S. Pub. No. 20030002495) in view of Kodama (U.S. Patent No. 5,416,787).

Regarding claims 11 and 26, Shahar teaches the robustness level is changed from the first

robustness level to the second robustness level. But Shahar fails to teach the steps of: encoding

the information stream using convolutional coding at a first coding rate; puncturing the encoded

information stream; and varying a rate at which the encoded information stream is punctured to

achieve a second coding rate.

However, Kodama teaches teach the steps of: encoding the information stream using

convolutional coding at a first coding rate (see fig. 8, and col. 2, lines 9-39); puncturing the

encoded information stream and varying a rate at which the encoded information stream is

punctured to achieve a second coding rate (see col. 12, line 50-col. 13, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

invention was made to modify Shahar system and by providing of the teaching of Kodama on the

convolutional code technique, thereto in order to reduce the decoding delay time.

Regarding claims 12 and 27, Kodama teaches the puncturing of the encoded information

stream occurs adjacent to a portion of the information stream where a demodulation of the

information stream begins (see col. 12, line 63-col. 13, line 2).

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Klayman (U.S. Patent No. 5,841,378) discloses system and apparatus for and method of

interfacing a demodulator and forward error correction decoder.

Leatherbury (U.S. Pub. No. 20020136231) discloses time division multiple access over

broadband modulation method and apparatus.

Bradley (US. Pub. No. 20020159614) discloses message coding for digital watermark

applications.

7.   **Any response to this action should be mailed to:**

        Commissioner of Patents and Trademarks
        Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II,
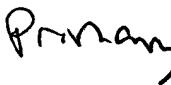*2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).*

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tan Trinh whose telephone number is (703) 305-5622. The

examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Nay Maung, can be reached at (703) 308-7745.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the **Technology Center 2600 Customer Service Office** whose telephone

number is **(703) 306-0377**.

Tan H. Trinh
Art Unit 2684
March 10, 2004

NICK CORSARO
PATENT EXAMINER